MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019 / 2020 SESSION

DPD 5211 – PROGRAM DESIGN

(DIT Only)

2 MARCH 2020
9:00 a.m. – 11:00am
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **7** pages.
2. There are **FOUR (4)** questions. Each question carries 10 marks.
3. Answer ALL questions.
4. Please write your answers in the **Answer Booklet** provided.

STRUCTURED QUESTIONS.

Instruction: Write your answer in the Answer Booklet provided.

QUESTION 1 [10 MARKS]

a) Based on the description given below, prepare a **flowchart** to determine the classification of honours to be awarded upon graduating from Multimedia University. [2.5 Marks]

- Initialize all the required variables.
- Get the *total points* and *total hours* from the user.
- Calculate the *CGPA* (formula: CGPA = total points / total hours).
- Determine the *classification of honours* based on the requirement shown in Table 1.

Table 1: Classification of honours based on CGPA

CGPA	Classification of Honours
3.67 to 4.00	First
3.33 to 3.66	Second Upper
2.67 to 3.32	Second Lower
2.00 to 2.66	Third

- Display the *CGPA* and *classification of honours*.

b) Based on the description given in (a), write the **pseudocode**. [2.5 Marks]

c) Write a **program** based on the questions in (a) and (b). You may refer to the sample output as shown below. [5 Marks]

SAMPLE OUTPUT

```
Enter total points: 400
Enter total hours:  120

CGPA : 3.33
Honours : Second Upper
```

[TOTAL 10 MARKS]

Continued...

QUESTION 2 [10 MARKS]

A direct selling company is selling cosmetic product of price RM30.00 per item. They would like to calculate the total item sold and commission from 3 employees for the first quarter (Q1) of 2019 (Jan – Mar 2019). Item sold for 3 months is a per Table 2:

Table 2: Item sold in Q1 2019

Employee	Item Sold Each Month		
	January	February	March
1	80	80	70
2	10	20	10
3	20	50	10

Based on the descriptions below, write a **program** that will display each employee's total item sold and commission amount.

a) Set the price per item as a constant using pre-processor directive. [0.5 Mark]

b) Declare a function prototype for the function. [1 Mark]

c) In *main():*

- Create a *two-dimensional array* with the appropriate size and initialise the values based on the data presented in Table 2.
- Call function *gerReport(...)* and pass in the array. [1.5 Marks]

d) In *getReport (...):*

- Using a nested loop:
  - Calculate the total item sold by the employee. Then, identify the commission rate based on the total item sold. Refer to Table 3.

Table 3: Commission rate based on total item sold

Total Item Sold	Commission Rate
More than 100 items	15%
Between 50 – 100 items	10%
Less than 50 items	5%

  - Based on the commission rate, calculate the commission amount.
  - Then, display the total item sold and commission amount received.

[7 Marks]

Continued...

You may refer to the following output:

SAMPLE OUTPUT

```
Employee Report
===================
Employee 1      : 230 items
Commission      : RM 1035.00

Employee 2      : 40 items
Commission      : RM 60.00

Employee 3      : 80 items
Commission      : RM 240.00
```

[TOTAL 10 MARKS]

QUESTION 3 [10 MARKS]

Table 4 shows the price of Premier League jersey.

Table 4: Premier League jersey and price

Jersey Code	Sports Team Name	Jersey price (RM)
C	Chelsea F.C.	299.00
A	Arsenal F.C.	300.00
M	Manchester United F.C.	280.00
L	Liverpool F.C.	99.00

Write a program based on the following descriptions.

a) Create a structure called *PLJersey*. Declare the following variables:
   - Jersey code: *jersey_code (char)*
   - Quantity of jersey: *qty (int)*
   - Jersey selling price: *sell_price (float)*
   - Subtotal charges of the jerseys price: *subtotal_charge (float)*

[2.5 Marks]

b) Create an array of structure variable called *myJersey* with size of 4, which represents for four users.
   - Declare other necessary variables. [1.5 Marks]

Continued...

c) Using *for loop* statement:
- Get user's input for the jersey code and quantity of jersey.
- Use *switch case* statement to determine the *sell_price* based on the *jersey code* (Refer to Table 4).
- Calculate the subtotal charge amount of jersey purchased for each user.
- Calculate the total payment of the purchased jerseys by all users.
- Display the subtotal charge amount.

[5.5 Marks]

d) Display the total payment. [0.5 Mark]

You may refer to the sample output.

SAMPLE OUTPUT

```
Buyer 1:
Enter jersey code: L
Enter quantity of jersey: 4
Subtotal charge to be paid : RM 396.00

Buyer 2:
Enter jersey code: A
Enter quantity of jersey: 2
Subtotal charge to be paid : RM 600.00

Buyer 3:
Enter jersey code: C
Enter quantity of jersey: 3
Subtotal charge to be paid : RM 897.00

Buyer 4:
Enter jersey code: M
Enter quantity of jersey: 5
Subtotal charge to be paid : RM 1400.00

Total payment to be made : RM 3293.00
```

[TOTAL 10 MARKS]

Continued...

QUESTION 4 [10 MARKS]

Program Q4 demonstrates a program that stores currency conversion amount into a text file. **Complete the program** based on the instructions below. You don't have to re-write the code that have been provided in *Program Q4.*

The instructions are as follows:

- In *main ():*
  - **A.** Declare two file pointer. [1 Mark]
  - **B.** Open a text file called *currency_convert.txt* for writing. [1 Mark]
  - o Ask the user to enter the currency to convert to and amount to convert in MYR.
  - o Using a selection control structure, identify the rate of each currency. Refer to the table below:

Table 5: Foreign currency and their exchange rate

CURRENCY	RATE
USD	0.2400
YEN	26.0794
SAR	0.9026

  - o Calculate the amount after conversion.
  - **C.** Write the MYR amount, currency, and amount after conversion into *currency_convert.txt*. Refer to Figure 1. [1 Mark]
  - o Repeat the process as long as user wish to convert again.
  - **D.** Close the file. [1 Mark]
  - **E.** Open a text file called *currency_convert.txt* for reading. [1 Mark]
  - **F.** Check if file pointer returns a NULL pointer, then display *"File could not be opened!"* and exit the program normally. If file successfully open, then use a loop to read all the data from the file and print the details as per sample output. [4 Marks]
  - **G.** Close the file. [1 Mark]

A sample content of *currency_convert.txt* after execution

```
<Amount in MYR> <Currency> <Amount after conversion>
```

```
350.00 USD 84.00
1500.00 SAR 1353.90
4851.00 YEN 126511.16
```

Figure 1: currency_convert.txt after execution

Continued...

Program Q4

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
void main(){
      ..........(A)..........

      char currency[5], cont;
      float rate,amountMYR,amountConvert;

      ..........(B)..........

      printf("------ CURRENCY CODE ------");
      printf("\nUSD - US Dollar ");
      printf("\nYEN - Japanese Yen");
      printf("\nSAR - Saudi Arabian Riyal");
      printf("\n--------------------------\n");
      do
      {
            fflush(stdin);
            printf("Enter currency: ");
            gets(currency);
            printf("Enter amount in MYR: ");
            scanf("%f", &amountMYR);

            if(strcmp(currency,"USD")==0)
                  rate = 0.24;
            else if(strcmp(currency,"YEN")==0)
                  rate = 26.0794;
            else if(strcmp(currency,"SAR")==0)
                  rate = 0.9026;

            amountConvert = amountMYR * rate;

            ..........(C)..........

            fflush(stdin);
            printf("\nConvert again?: ");
            scanf("%c", &cont);
      }while(cont=='Y');

      ..........(D)..........

      ..........(E)..........

      ..........(F)..........

      ..........(G)..........
}
```

Continued...

You may refer to the sample output.

SAMPLE OUTPUT

```
------ CURRENCY CODE ------
USD - US Dollar
YEN - Japanese Yen
SAR - Saudi Arabian Riyal
--------------------------
Enter currency: USD
Enter amount in MYR: 350

Convert again?: Y
Enter currency: SAR
Enter amount in MYR: 1500

Convert again?: Y
Enter currency: YEN
Enter amount in MYR: 4851

Convert again?: N
Convert MYR 350.00 to USD = 84.00 USD
Convert MYR 1500.00 to SAR = 1353.90 SAR
Convert MYR 4851.00 to YEN = 126511.16 YEN
```

[TOTAL 10 MARKS]

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